

AMENDMENT TO THE CLAIMS

This listing of claims replaces all previous versions and listings of claims in the present application.

1. – 2. (Canceled)

3. (Currently Amended) An ADSL modem apparatus, comprising:

an exchange unit that transmits and receives a REVERB signal according to one of the ITU-T standard G.992.1 and G.992.2 during an initialization sequence portion of a communication;

an estimation unit that estimates a communication distance to an opposing ADSL modem apparatus based upon a reception level of the REVERB signal; and

a communication unit that communicates performs data transmission subsequent to the initialization sequence portion by concentrating a signal energy into a low frequency band, the signal energy being assigned to a transmission signal according to the communication distance estimated by said estimation unit.

4.(Previously Presented) The ADSL modem apparatus according to claim 3, wherein said communication unit minimizes a signal energy assigned to a high frequency band and increases the signal energy assigned to the low frequency band when the communication distance to the opposing ADSL modem apparatus is increased.

5.(Canceled)

6.(Canceled)

7.(Currently Amended) A communication method for an ADSL modem apparatus, comprising:

receiving a REVERB signal according to one of ITU-T standard G.992.1 and G.992.2
during an initialization sequence portion of a communication;

estimating a communication distance to an opposing ADSL modem apparatus based upon a reception level of the REVERB signal; and

performs data transmission subsequent to the initialization sequence portion by
concentrating a signal energy into a low frequency band, the signal energy being assigned to a transmission signal according to the estimated communication distance.

8.(Previously Presented) The communication method for an ADSL modem apparatus according to claim 7, further comprising:

minimizing a signal energy assigned to a high frequency band and increasing the signal energy assigned to the low frequency band when the communication distance to the opposing ADSL modem apparatus is increased.

9.(Withdrawn) A modem apparatus, comprising:

an exchanger that transmits a REVERB signal as part of a modem training signal; and
an estimator that estimates a distance between an opposing modem apparatus and the modem apparatus according to a reception level of the REVERB signal

wherein the exchanger transmits a data signal according to a power spectrum, the power spectrum being determined on the basis of the distance.

10. – 11. (Canceled)

12. (New) The ADSL modem apparatus according to claim 3, wherein the estimation unit estimates the communication distance based upon a comparison of the reception level between two carriers of a plurality of carriers.

13. (New) The ADSL modem apparatus according to claim 3, wherein the estimation unit estimates the communication distance based upon comparison of a difference in signal energy attenuation between two carriers of a plurality of carriers.

14. (New) The ADSL modem apparatus according to claim 3, wherein the communication unit concentrates signal energy into the low-frequency band without changing a total amount of signal energy in a data communication band.

15. (New) The ADSL modem apparatus according to claim 3, wherein the communication unit performs ADSL communication using a power spectral density modified based upon the communication distance estimated by said estimation unit.

16. (New) The ADSL modem apparatus according to claim 15, said communication unit being configured to select one of a plurality of stored power spectral densities based on a communication distance estimated by said estimation unit.

17. (New) The communication method according to claim 7, wherein the estimation comprises estimating the communication distance based upon a comparison of reception levels between two carriers of a plurality of carriers.

18. (New) The communication method according to claim 7, wherein the estimation comprises estimating the communication distance based upon a comparison of a difference in signal energy attenuation of two carriers of a plurality of carriers.

19. (New) The communication method according to claim 7, wherein the concentrating comprises concentrating signal energy into the low-frequency band without changing a total amount of signal energy in a data communication band.

20. (New) The communication method according to claim 7, wherein the concentrating comprises performing ADSL communication using a power spectral density modified based upon the communication distance estimated.

21. (New) The communication method according to claim 20, further comprising selecting one of a plurality of stored power spectral densities based on the communication distance estimated.